

**Progress Report
Pacific Islands Integrated Ocean Observing System (PacIOOS)
Grant # NA05NOS4731116**

**Submitted by
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1. Project Summary

This report covers the period from December 1, 2006 through May 31, 2007. The notice of award for first-year funding for PacIOOS was received on July 29, 2005 although the official start date on the grant is listed as June 1, 2005. This grant began the formal process of planning for the development of an IOOS program for the Pacific Islands and the Regional Association governance structure that will support it.

PacIOOS activities during this performance period addressed the following objectives associated with the emergence of an effective Pacific IOOS regional program:

- **Ensure broad engagement of key stakeholders and partner institutions** in the development of an initial PacIOOS program with continuing efforts to assess progress, address problems and explore new opportunities;
- **Identify critical information needs** in the high-priority areas described above including completion of an inventory of existing observing systems and information products, the identification of critical gaps and the development of recommendations for new or enhanced ocean information products; and
- **Establish appropriate program oversight, coordination and implementation mechanisms** to support a PacIOOS regional program.

2. Progress on Regional Association Development

Key activities and highlights of accomplishments during this performance period include:

- Continued to work with the EWC Budget Office and the University of Hawaii School of Ocean and Earth Sciences and Technology (UH/SOEST) to define details of the transition of the PacIOOS development grant from the EWC to UH/SOEST. The EWC will continue to administer the grant. A reprogramming requirements letter will be submitted through Grants Online in the near future. Dr. Brian Taylor, UH/SOEST Dean, is now co-PI for PacIOOS. Margaret McManus of UH/SOEST has been appointed as PacIOOS Coordinator. Both EWC and UH/SOEST will be PacIOOS representatives on the NFRA Board of Directors;
- Development of an appropriate PacIOOS governance structure will be vetted with regional partners and stakeholders during the third year of the development grant;

- A proposal submitted by UH/SOEST, Monitoring the Coastal Regions of Pacific Islands: An Integrated Plan for Oahu, Hawaii, has been awarded FY 2007 Regional IOOS Development funding. The proposal will deliver, in real or near-real time, data and derived products from a suite of in-situ measurements and data-assimilating models that will contribute in making the most informed decisions for general planning, and especially in times of crises or extreme events. The observing system will be comprised of three interrelated components: a) regional and coastal observations, b) modeling, and c) data management and product development. The project is initially a Hawaii-focused ocean observing system that will address high-priority state needs. It will become a core sub-regional component of the emerging PacIOOS region that will eventually be applied to the larger PacIOOS region;
- A series of introductory PacIOOS planning meetings have been conducted in the American Flag and U.S. Affiliated Pacific Islands including American Samoa, the Republic of the Marshall Islands, the Federated States of Micronesia, Guam, the Commonwealth of the Northern Mariana Islands and the Republic of Palau. These meetings were designed to support the identification of initial PacIOOS priorities in these jurisdictions and facilitate the establishment of a local PacIOOS planning capability including designation of a PacIOOS liaison in each jurisdiction. These initial PacIOOS discussions were conducted in conjunction with workshop on the Consequences of Climate Variability and Change organized by the EWC through a grant from the NOAA Coastal Services Center (CSC). Summaries of the workshops and PacIOOS meetings have been posted on the Pacific Islands Regional Integrated Science and Assessment (RISA) website (<http://research.eastwestcenter.org/climate/risa/RISA-stakeholders.htm>);
- Supplemented the Pacific Risk Management Ohana (PRiMO) inventory effort in the context of weather and climate-related risks through discussions with key climate partner programs and institutions including NOAA/National Weather Service (NWS), NOAA/National Environmental Satellite, Data, and Information Service (NESDIS), University of Hawaii/International Pacific Research Center (IPRC) and UH/SOEST among others and the initiation of a regional observations inventory in the climate theme area;
- Continued to support the work of the PRiMO Observations and Data Management Hui (working group) to identify risk management information needs and priorities and move towards completion of an inventory of ocean observing systems supporting risk management in the PacIOOS region;
- Continued discussions with key partners in marine and coastal ecosystem research and management including the NOAA/National Marine Fisheries Service (NMFS), NOAA/National Marine Sanctuaries (NMS), UH/Hawaii Institute for Marine Biology (UH/HIMB) and UH/SOEST in order to: a) undertake a regional inventory of ocean and coastal observations in this theme area; and b) explore

critical information needs and opportunities for collaboration in a PacIOOS context;

- Continued support for the Pacific Islands Global Ocean Observing System (PI-GOOS) through service on the PI-GOOS steering committee and dialogue and joint planning with the PI-GOOS Program Officer at the South Pacific Applied Geosciences Commission (SOPAC);
- Continued support for the Pacific Islands Global Climate Observing System (PI-GCOS) through service on the PI-GCOS steering committee and dialogue and joint planning with the PI-GCOS Program Officer at the Secretariat for the Pacific Regional Environment Programme (SPREP).;
- Continued a collaborative working relationship with the NOAA Integrated Data and Environmental Applications (IDEA) Center through which IDEA Center staff will support education/outreach and data management activities during the development phase of PacIOOS;
- Continued work with PRiMO, NOAA IDEA Center, NOAA Pacific Services Center (PSC), and Pacific Disaster Center (PDC) to advance the development of a wave and water level product line as an initial PacIOOS priority. This work built on a PRiMO sponsored Wave and Water Level Hazards Data Framework workshop that was organized to advance the objective of aligning wave and water level data collection, integration and sharing throughout the Pacific Region. A workshop summary, presentations and background material can be found at the PacIOOS website (<http://research.eastwestcenter.org/PacIOOS/www.html>);
- Continued development of an initial integrated data product suite on wave and water level including activities in support of the development and implementation of a pilot XML Tide Station Web Service to support tsunami detection and warning (<http://www.pdc.org/pride/ptwc/stations.kml>). Specifically, the NOAA IDEA Center, PDC, and Pacific Tsunami Warning Center (PTWC) staff met with International Oceanographic Data and Information Exchange (IODE) and Global Sea Level Observing System (GLOSS) Intergovernmental Oceanographic Commission (IOC) staff to coordinate ongoing activities related to an XML schema and accompanying client application development in this area. In addition to activities related to exposing and harvesting tide station metadata, a tsunami bulletin schema based on PTWC operations and legacy business processes has also been developed;
- Supported a Pacific Region Integrated Data Products (PRICIP) Expert Teams Workshop in June 2006. This workshop brought together recognized experts in the area of climate-related processes that govern storminess and its expression as heavy rains, strong winds, and high seas in the Pacific region. It served as a detailed scientific planning meeting for a coastal climatologies regional demonstration project to support the emergence of a national coastal climatology

program. The wave and water level product development efforts fall under the category of high seas in the context of this broader coastal climatology effort being undertaken by the NOAA IDEA Center in collaboration with PacIOOS and other partners. A PRICIP Program Integrated Team meeting was held in December 2006 involving the theme leads and focused on identification of potential tailored information products and their linkage to and the refinement of derived data product work plans. Workshop presentations, reports and background material can be found at the PRICIP website (<http://www.pricip.org/>);

- Continued discussions with potential partners in PacIOOS education and outreach activities including NOAA PSC, Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS), Northwest Hawaiian Islands National Monument (NWHINM), Pacific Resources for Education and Learning (PREL), Hawaii Sea Grant, Hawaii State Department of Health, Hawaii State Department of Education, Centers for Ocean Sciences Education Excellence (COSEE), and other IOOS Regional Associations;
- Continued to develop a hazards inventory of education and outreach materials and efforts. This is an ongoing effort to benefit PRiMO's Education and Outreach Hui as well as support PacIOOS education and outreach work in the area of risk management;
- Continued enhancement of the PacIOOS website through the addition of new materials, links and documentation related to the development of PacIOOS and initial PacIOOS product lines (<http://research.eastwestcenter.org/PacIOOS>);
- Continued monthly program status meetings with the PacIOOS Technical Program Officer for the IOOS development grant. Jaime Carter of NOAA/PSC will be assuming this duty from Darcee Killpack in July 2007.

3. Priorities for Observations from a Regional Perspective

- No significant changes to the general priorities described in the November 2005 semi-annual Progress Report;
- Participation in the deliberations of the PRiMO Observations and Data Management Hui and discussions with the All Islands Coastal Zone Management group confirmed the importance of the development of enhanced information on wave and water level risks which are being addressed as an initial PacIOOS, PRiMO, and NOAA IDEA Center priority. PacIOOS is moving forward on this front and progress updates will continue to be posted on the PacIOOS website;
- Deliberations during the introductory PacIOOS workshops reinforced the initial data and information priorities identified during the initial symposium in American Samoa and reported on in the November 2005 semi-annual report. As

noted earlier, summaries of the information needs and priorities identified during these symposia will be posted on the PacIOOS website;

- As noted in previous semi-annual reports, the PacIOOS team believes that one of the highest priorities is the explicit identification of sufficient funding for the Regional Program component of IOOS as well as national backbone funding priorities in Agency budget requests to Congress. This includes, as a high priority, securing legislative and executive branch authorities to move from the current funding situation to a program with sufficient funding for full national coverage in both planning and implementation of regional IOOS programs.

4. Scope of Work for the Next Funding Period

- PacIOOS will continue to explore opportunities to link ocean ecosystem observing and data management activities with similar observational and data management interests of the OBIS and Pacific NEON programs that focus on long-term observations of biological and terrestrial ecosystems. The Hawaiian resource management concept of ahupua'a – from the mountain ridge to the outer edge of the coral reef – acknowledges the importance of addressing resource management and ecosystem health issues in an integrated fashion in the coastal zone. One specific area of shared interest is in meeting the data integration and visualization challenges these related programs face;
- The PacIOOS team continues to be involved in the development of a Pacific Islands Climate Information System (PaCIS) in the context of identifying and addressing climate-related aspects of Pacific IOOS. A PaCIS program framework describing the integration of climate observations, forecasting, research, research, modeling, assessment, data management and education is currently being developed. In addition to providing regional climate services to American Flag and U.S. Affiliated Pacific Islands, PaCIS is being developed in the context of a U.S. contribution to the emergence of a Regional Climate Centre for Oceania under the auspices of the World Meteorological Organization (RA V).

5. Budget Analysis

- A Financial Progress Report for the period 10/1/06-3/31/07 was submitted via Grants Online by the East-West Center's Financial and Administrative Services.